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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/464,685	12/16/1999	MARIA ALEXANDRA GLUCKSMANN	5800-2B	7965

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INTELLECTUAL PROPERTY GROUP
MILLENNIUM PHARMACEUTICALS, INC
75 SIDNEY STREET
CAMBRIDGE, MA 02139

EXAMINER	
NICKOL, GARY B	
ART UNIT	**PAPER NUMBER**
1642	

DATE MAILED: 08/26/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/464,685	GLUCKSMANN ET AL.	
	Examiner	Art Unit	
	Gary B. Nickol Ph.D.	1642	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☒ Responsive to communication(s) filed on *17 May 2004*.

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *73,74,81 and 88-96* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *73,74,81 and 88-96* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are: a)☐ accepted or b)☐ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).

11)☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

12)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____.

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08) Paper No(s)/Mail Date _____.
4) ☐ Interview Summary (PTO-413) Paper No(s)/Mail Date. _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: _____.

Re: Glucksmann *et al.*

Date of priority: June 2, 1998

Claims 73-74, 81, 88-96 are pending.

Response to Arguments

In view of the return of this application from the Board of Patent Appeals and Interferences on remand (05/17/04) and in view of the appeal brief filed on 07-13-01, PROSECUTION IS HEREBY REOPENED. New grounds of rejections are set forth below. In response to this action, Applicants should address their arguments solely to the issues set forth below.

To avoid abandonment of the application, appellant must exercise one of the following two options:

(1) file a reply under 37 CFR 1.111 (if this Office action is non-final) or a reply under 37 CFR 1.113 (if this Office action is final); or,

(2) request reinstatement of the appeal.

If reinstatement of the appeal is requested, such request must be accompanied by a supplemental appeal brief, but no new amendments, affidavits (37 CFR 1.130, 1.131 or 1.132) or other evidence are permitted. See 37 CFR 1.193(b)(2).

Claim Rejections - 35 USC § 101

35 U.S.C. 101 reads as follows:

> Whoever invents or discovers any new and useful process, machine, manufacture, or composition of matter, or any new and useful improvement thereof, may obtain a patent therefor, subject to the conditions and requirements of this title.

Claims 73-74, 81, 88-96 are rejected under 35 U.S.C. 101 because the claimed invention is not supported by either a specific asserted utility or a well established utility.

All of the claims are drawn to methods that require the use of the amino acid sequence of SEQ ID NO:1. This includes methods of detecting SEQ ID NO:1, methods of screening cells to identify agents that bind to SEQ ID NO:1, methods of modulating the activity of SEQ ID NO:1, and methods for assessing G-protein receptor expression in disease states comprising contacting a patient with an antibody that binds to the polypeptide. As set forth below, since the protein comprising SEQ ID NO:1 lacks utility, the claimed antibodies and methods specific to SEQ ID NO:1 also lack utility.

The specification proposes that the amino acid sequence comprising SEQ ID NO: 1 (referred to as the "2871 receptor polypeptide") is a G-protein coupled receptor (GPCR) and thus has utility for the modulation, diagnosis, and treatment of immune and respiratory disorders, especially T helper cell and T helper cell-like disorders (page 8, lines 25+). The specification further proposes that the receptor polypeptide is useful for monitoring therapeutic effects during clinical trials and other treatments (page 26, line 4) and that the receptor may further be incorporated into pharmaceutical compositions suitable for administration to a subject, e.g., a human (page 53, line 8). However, neither the specification nor any art of record teaches what the 2871 polypeptide is, how it functions, or a specific and well-established utility for any of the claimed antibodies and methods involved with the use of the 2871 receptor polypeptide.

Furthermore, the specification does not teach a relationship to any specific disease or establish any involvement in the etiology of any specific disease. Additional disclosed utilities for the receptor include methods of screening compounds to identify agonists or antagonists that interact with the binding of the receptor as GPCRs are a major target for drug action and development (page 3, line 14). The asserted utility of the 2871 receptor polypeptide is based on an expressed sequence tag (EST) that was selected based on homology to G-protein coupled receptors (page 10, line 19) wherein analysis of the assembled sequence revealed that the cloned cDNA molecule **encodes a GPCR**. This assertion also appears to be based on the fact that the putative transmembrane domain includes a commonly conserved tripeptide- aspartate, arginine, tyrosine (or DRY), that is implicated in GPCR signal transduction (page 5, lines 20+; page 11, line 15). and Figure). Thus, based solely on sequence homology, the specification asserts that the 2871 receptor polypeptide will have similar biological effects and activities ascribed to G-protein coupled receptors. However, evidence based on protein sequence homology does not alone permit extrapolation to an isolated amino acid's biological function or use thereof. Bowie *et al.* (Science, 1990, 257:1306-1310) teach that an amino acid sequence encodes a message that determines the shape and function of a protein and that it is the ability of these proteins to fold into unique three-dimensional structures that allows them to function and carry out the instructions of the genome. Bowie *et al.* further teach that the *problem* of predicting protein structure from sequence data and in turn utilizing predicted structural determinations to ascertain functional aspects of the protein is extremely complex. (col 1, p. 1306). Further, Bork (Genome Research, 2000,10:398-400) teaches the many pitfalls associated with comparative sequence analysis for predicting protein function because of the known error margins for high-throughput

computational methods. Bork teaches that computational sequence analysis is far from perfect, despite the fact that sequencing itself is highly automated and accurate (p. 398, col 1). One of the reasons for the inaccuracy is that the quality of data in public sequence databases is still insufficient. This is particularly true for data on protein function. Protein function is context dependent, and both molecular and cellular aspects have to be considered (p. 398, col 2). Conclusions from the comparison analysis are often stretched with regard to protein products (p. 398, col 3). Furthermore, recent studies show that alternative splicing might affect more than 30% of human genes and the number of known post-translational modifications of gene products is increasing constantly so that complexity at protein level is enormous. Each of these modifications may change the function of respective gene products drastically (p. 399, col 1). Further, although gene annotation via sequence database searches is already a routine job, even here the error rate is considerable (p. 399, col 2). For example, Scott *et al.* (Nature Genetics, 1999, 21:440-443) teach that the gene causing Pendred syndrome encodes a putative transmembrane protein designated pendrin. Based on sequence similarity data, the authors postulated that the putative protein was deemed to be a member of sulfate transport proteins that included a 29% identity to rat sulfate-anion transporter, 32% similarity to human diastrophic dysplasia sulfate transporter, and 45% similarity to the human sulfate transporter 'downregulated in adenoma'. However, upon analyzing the expression and kinetics of the protein, the data revealed no evidence of sulfate transport wherein results revealed that pendrin functioned as a transporter of chloride and iodide. Scott *et al.* suggest that these results underscore the importance of confirming the function of newly identified gene products even when the database searches reveal significant homology to proteins of known function (page 411, 1st column, 4th

paragraph). Thus, despite the homology between the 2871 receptor polypeptide and GPCRs, it cannot be predicted, based on the information in the specification, that the 2871 receptor polypeptide is indeed a G-protein coupled receptor.

According to the Federal Guidelines (Fed. Reg. Vol. 66, No. 4, January 5, 2001), an isolated and purified nucleic acid molecule may meet the statutory utility requirement if, e.g., it can be used to produce a useful protein or it hybridizes near and serves as a marker for a disease gene. However, based on the disclosure it cannot be predicted that the isolated nucleic acid actually encodes a functional protein, nor does the specification or any art of record teach a relationship to any specific disease or establish any involvement of the invention in the etiology of any specific disease. The specification essentially gives an invitation to experiment wherein the artisan is invited to elaborate a functional use for the disclosed polypeptide. Because the claimed invention is not supported by a specific and substantial utility for the reasons set forth, credibility of any utility cannot be assessed.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

> The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 73-74, 81, 88-96 are also rejected under 35 U.S.C. 112, first paragraph. Specifically, since the claimed invention is not supported by either a specific asserted utility or a

well established utility for the reasons set forth above, one skilled in the art clearly would not know how to use the claimed invention.

The following is a quotation of the second paragraph of 35 U.S.C. 112:

> The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 73 recites the limitation "the sample" in Claim 73. There is insufficient antecedent basis for this limitation in the claim.

Claims 95-96 are rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential steps, such omission amounting to a gap between the steps. See MPEP § 2172.01. The omitted steps are: a correlation step describing how the results of the assay relate back to the preamble of the method objectives.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

Claims 73-74, 81, 88-89, and 93-96 are rejected under 35 U.S.C. 102(e) as being anticipated by Elshourbagy *et al.* (US 2001/0025099 A1, **February 20, 1998**).

Elshourbagy *et al.* teach an isolated polypeptide comprising the amino acid sequence of SEQ ID NO:1 (see attached sequence comparison). The prior art further teaches methods of detecting the presence of the polypeptide comprising SEQ ID NO:1 (paragraph 68) and methods for screening a cell to identify an agent that binds with the polypeptide of SEQ ID NO:1 (paragraphs 73-74). The method further teaches assessing G-protein receptor expression in disease states of a patient, comprising contacting a tissue of said patient with an isolated antibody that selectively binds to the polypeptide of SEQ ID NO:1 (paragraphs 56-62 further teaches methods for identifying agents and or compounds that bind to the polypeptide of SEQ ID:1 (page 12) and methods of modulating the activity of SEQ ID NO:1 comprising contacting cells with a compound that binds to SEQ ID NO:1.

Double Patenting

A rejection based on double patenting of the "same invention" type finds its support in the language of 35 U.S.C. 101 which states that "whoever invents or discovers any new and useful process ... may obtain a patent therefor ..." (Emphasis added). Thus, the term "same invention," in this context, means an invention drawn to identical subject matter. See *Miller v. Eagle Mfg. Co.*, 151 U.S. 186 (1894); *In re Ockert*, 245 F.2d 467, 114 USPQ 330 (CCPA 1957); and *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970).

A statutory type (35 U.S.C. 101) double patenting rejection can be overcome by canceling or amending the conflicting claims so they are no longer coextensive in scope. The filing of a terminal disclaimer cannot overcome a double patenting rejection based upon 35 U.S.C. 101.

Claims 73-74, and 88 are provisionally rejected under 35 U.S.C. 101 as claiming the same invention as that of claims 9, 11-12, 24 of copending Application No. 09/324,465. This is a provisional double patenting rejection since the conflicting claims have not in fact been patented.

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. See *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970);and, *In re Thorington,* 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent is shown to be commonly owned with this application. See 37 CFR 1.130(b).

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

Claim 81 is provisionally rejected under the judicially created doctrine of obviousness-type double patenting as being unpatentable over claim 29 of copending Application No. 09/324,465. Although the conflicting claims are not identical, they are not patentably distinct from each other because both claims encompass modulating the activity a polypeptide of SEQ ID NO:1 in a cell with a compound that binds to the polypeptide.

This is a provisional obviousness-type double patenting rejection because the conflicting claims have not in fact been patented.

No claim is allowed.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Gary B. Nickol Ph.D. whose telephone number is 571-272-0835. The examiner can normally be reached on M-Th, 8:30-5:30; alternate Fri., 8:30-4:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jeffrey Siew can be reached on 571-272-0787. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see http://pair-direct.uspto.gov. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Gary B. Nickol Ph.D.
Primary Examiner
Art Unit 1642

GBN

GARY NICKOL
PRIMARY EXAMINER